This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An image sensing apparatus comprising:

an image sensor which separately outputs image signals of a plurality of divided areas ~~of~~ , each area having a plurality of photoreceptive pixels, from a plurality of output terminals respectively corresponding to the plurality of divided areas; and

~~a control unit for controlling to read a reference density member having a predetermined density of half tone; and~~

an adjustment unit ~~for adjusting levels~~ adapted to adjust level of the image ~~signals~~ signal output ~~by~~ from each of said output terminals so as to substantially correspond ~~to a level of~~ with a predetermined reference ~~signal based on data obtained by reading said~~ level when said image sensor reads a reference density member ~~by said image sensor~~ having a predetermined density.

2. (Original) The image sensing apparatus according to claim 1, wherein said adjustment unit adjusts the levels of the image signals output from said output terminals using look up tables.

3. (Original) The image sensing apparatus according to claim 1, wherein said adjustment unit adjusts the levels of the image signals output from said output terminals using operation equations.

4. (Currently Amended) The image sensing apparatus according to claim 1, wherein said adjustment unit adjusts the levels of the image signals output from said output terminals so as to substantially ~~match to~~ correspond with the level of the predetermined reference signal on the basis of data obtained by reading said reference density member by said image sensor while changing accumulation period.

5. (Original) The image sensing apparatus according to claim 4, wherein said adjustment unit adjusts the levels of the image signals output from said output terminals on the basis of levels obtained by subtracting dark current level output during the accumulation period which is used for reading said reference density member from the levels of the image signals output from said output terminals.

6. (Original) The image sensing apparatus according to claim 1, further comprising a shading correction unit,

wherein said adjustment unit is arranged downstream to said shading correction unit.

7. (Original) The image sensing apparatus according to claim 1 further comprising a shading correction unit,

wherein said adjustment unit is arranged upstream to said shading correction unit.

8. (Original) The image sensing apparatus according to claim 1 further comprising:

a shading correction unit; and

a switch for changing a processing order of said adjustment unit and said shading correction unit.

9. (Original) The image sensing apparatus according to claim 1, wherein said image sensor separately outputs signals of a right-side divided area from signals of a left-side divided area.

10. (Original) The image sensing apparatus according to claim 1, wherein said image sensor is a linear image sensor.

11. (Original) The image sensing apparatus according to claim 10, wherein a plurality of said linear image sensors respectively corresponding to a plurality of colors are provided to form a color image sensor.

12. (Original) The image sensing apparatus according to claim 1, wherein said image sensor is an area image sensor.

13. (Original) The image sensing apparatus according to claim 1, wherein said reference density member is provided within the image sensing apparatus.

14. (Currently Amended) The image sensing apparatus according to claim 1 further comprising a platen for placing an original to be read on it,

wherein ~~said control unit controls~~ said image sensor ~~to read~~ reads said reference density member in a case where said reference density member is placed on said platen.

15. (Original) The image sensing apparatus according to claim 1, wherein the image sensing apparatus is connected to a printer and said reference density member is printed by said printer.

16. (Original) The image sensing apparatus according to claim 15, wherein the image sensing apparatus is integrally configured with said printer.

17. (Currently Amended) An image sensing method in image sensing apparatus having an image sensor which separately outputs image signals of a plurality of divided areas ~~of~~ , each area having a plurality of photoreceptive pixels, from a plurality of output terminals respectively corresponding to the plurality of divided areas, and a processing unit for processing the output image signals, said method comprising:

a reading step of reading a reference density member having a predetermined density of half tone by said image sensor;

an adjustment step of adjusting said processing unit so as to substantially correspond levels of the image signals output from said output terminals ~~to a level of~~ with a predetermined reference ~~signal based on data obtained by reading~~ level when said image sensor reads said reference density member ~~by said image sensor~~ having a predetermined density; and

an original read step of reading an original by said image sensor.

18. (Original) The image sensing method according to claim 17, wherein, in said adjustment step, look up tables of said processing unit are set to adjust the levels of the image signals output from said output terminals.

19. (Original) The image sensing method according to claim 17, wherein, in said adjustment step, operation equations in said processing unit are set to adjust the levels of the image signals output from said output terminals using operation equations.

20. (Currently Amended) The image sensing method according to claim 17, wherein, in said adjustment step, said processing unit is adjusted so as to substantially ~~match~~ correspond the levels of the image signals output from said output terminals ~~to~~ with the level of the predetermined reference signal on the basis of data obtained by reading said reference density member by said image sensor while changing accumulation period.

21. (Currently Amended) The image sensing method according to claim 20, wherein, in said adjustment step, levels obtained by subtracting dark current level output during the accumulation period which is used for reading said reference density member from the levels of the image signals output from said output terminals are ~~matched to~~ corresponds with the level of the predetermined reference signal.

22. (Original) The image sensing method according to claim 17 further comprising a shading correction step,

wherein said adjustment step is performed after said shading correction step.

23. (Original) The image sensing method according to claim 17 further comprising a shading correction step,

wherein said adjustment step is performed before said shading correction step.

24. (Original) The image sensing method according to claim 17 further comprising:

a shading correction step; and

a switching step of changing a processing order of said adjustment step and said shading correction step.

25. (Original) The image sensing method according to claim 17 wherein said image sensor separately outputs signals of a right-side divided area from signals of a left-side divided area.

26. (Original) The image sensing method according to claim 17, wherein said image sensor is a linear image sensor.

27. (Original) The image sensing method according to claim 26, wherein the image sensing apparatus has a plurality of said linear image sensors respectively corresponding to a plurality of colors to form a color image sensor.

28. (Original) The image sensing method according to claim 17, wherein said image sensor is an area image sensor.

29. (Original) The image sensing method according to claim 17, wherein said reference density member is provided within the image sensing apparatus.

30. (Original) The image sensing method according to claim 17, wherein the image sensing apparatus further includes a platen for placing an original to be read on it, and in said reading step, said reference density member placed on said platen is read.

31. (Original) The image sensing method according to claim 17, wherein the image sensing apparatus is connected to a printer, and the image sensing method further comprises a step of printing said reference density member by said printer.

32. (Currently Amended) The image sensing method according to claim ~~17~~ 31, wherein the image sensing apparatus is integrally configured with said printer.

33. (Currently Amended) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for an image reading method in image sensing apparatus having an image sensor which separately outputs image signals of a plurality of divided areas ~~of~~, each area having a plurality of photoreceptive pixels from a plurality of output terminals respectively corresponding to the

plurality of divided areas, and a processing unit for processing the output image signals, said product including:

first computer readable program code means for reading a reference density member having a predetermined density of half tone by said image sensor;

second computer readable program code means for adjusting said processing unit so as to substantially ~~match~~ correspond levels of the image signals output from said output terminals ~~to a level of~~ with a predetermined reference ~~signal on the basis of data obtained by reading~~ level when said image sensor reads said reference density member ~~by said image sensor~~ having a predetermined density; and

third computer readable program code means for reading an original by said image sensor.

34. (Currently Amended) An image-sensing apparatus comprising:

an image sensor which separately outputs image signals of a plurality of divided areas ~~of~~, each area having a plurality of photoreceptive pixels from a plurality of output terminals respectively corresponding to the plurality of divided areas;

~~a shading correction unit for applying shading correction to the image signals; and~~

an adjustment unit ~~for adjusting levels~~ adapted to adjust level of the image ~~signals~~ signal output from each of said output terminals so as to substantially ~~match to a level of~~ correspond with a predetermined reference ~~signal~~ level; and

a shading correction unit adapted to apply shading correction to the image signals whose levels where adjusted by said adjustment unit.

35. (Currently Amended) An image sensing method in image sensing apparatus having an image sensor which separately outputs image signals of a plurality of divided areas ~~of~~ , each area having a plurality of photoreceptive pixels, from a plurality of output terminals respectively corresponding to the plurality of divided areas, said method comprising:

an adjustment step of adjusting levels of the image ~~signals~~ signal output from each of said output terminals so as to substantially ~~match to a level of~~ correspond with a predetermined reference ~~signal~~ level; and

a shading correction step of applying shading correction ~~on~~ to said image signals whose levels were adjusted in said adjustment step.

36. (Currently Amended) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for an image sensing method in image sensing apparatus having an image sensor which separately outputs image signals of a plurality of divided areas ~~of~~, each area having a plurality of photoreceptive pixels, from a plurality of output terminals respectively corresponding to the plurality of divided areas, said product including:

first computer readable program code means for adjusting levels of the image ~~signals~~ signal output from said each of output terminals so as to substantially ~~match to a level of~~ correspond with a predetermined reference ~~signal~~ level; and

second computer readable program code means for applying shading correction ~~on~~ to said adjusted image signals whose levels were adjusted.

37. (Currently Amended) An image sensing apparatus comprising:

an image sensor which separately outputs image signals of a plurality of divided areas ~~of~~, each area having a plurality of photoreceptive pixels, from a plurality of output terminals respectively corresponding to the plurality of divided areas;

a reference level acquisition unit adapted to acquire a first reference level based on the image signals output from said output terminals when said image sensor reads a white member, and acquire a second reference level based on the image signals output from said output terminals when said image sensor reads a reference density member having a predetermined density of half tone; and

~~a plurality of signal processing units, respectively corresponding to the plurality of divided areas, for applying predetermined signal processing to the image signals output from said output terminals;~~

~~a white board;~~

~~a control unit for controlling to read a reference density member having a predetermined density of half tone; and~~

an adjustment ~~data acquisition unit for acquiring adjustment data, for the respective signal processing units, for 1) substantially matching levels~~ unit adapted to adjust level of the image signal output from each of said output terminals so that level of the image ~~signals~~ signal output from ~~said plurality of signal processing units to a~~ each of said output terminals substantially corresponds with said first ~~predetermined~~ reference level when said image sensor reads said white ~~board is scanned, 2) substantially matching levels~~ member, and adjust level of the image signal output from each area of said image sensor so that level of the image ~~signals~~ signal output from ~~said plurality of signal processing units to a~~ each of said output terminals substantially corresponds with said second ~~predetermined~~ reference level when said image

sensor reads said reference density member ~~board is scanned, and 3) substantially matching levels of the image signals output from said plurality of signal processing units to a level obtained by interpolating between said first and second predetermined levels when an image having a density other than the density of said white board and said reference density board is scanned; and~~

~~an adjustment unit for adjusting levels of image signals output from said plurality of signal processing units using said adjustment data.~~

38. (Original) The image sensing apparatus according to claim 37, wherein said reference density member is provided within the image sensing apparatus.

39. (Currently Amended) The image sensing apparatus according to claim 37 further comprising a platen for placing an original to be read on it,

wherein ~~said control unit controls~~ said image sensor ~~to read~~ reads said reference density member in a case where said reference density member is placed on said platen.

40. (Currently Amended) The image sensing apparatus according to claim 37, wherein at least one of the first and second ~~predetermined~~ reference levels is set in advance.

41. (Currently Amended) The image sensing apparatus according to claim 37, wherein said first ~~predetermined~~ reference level is an average of signal levels ~~obtained from said plurality of signal processing units~~ when said white ~~board~~ member is scanned.

42. (Currently Amended) The image sensing apparatus according to claim 37, wherein said first ~~predetermined~~ reference level is a maximum of signal levels ~~obtained from said plurality of signal processing units~~ when said white ~~board~~ member is scanned.

43. (Currently Amended) The image sensing apparatus according to claim 37, wherein said first ~~predetermined~~ reference level is a minimum of signal levels ~~obtained from said plurality of signal processing units~~ when said white ~~board~~ member is scanned.

44. (Currently Amended) The image sensing apparatus according to claim 37, wherein said second ~~predetermined~~ reference level is an average of signal levels ~~obtained from said plurality of signal processing units~~ when said reference density board is scanned.

45. (Currently Amended) The image sensing apparatus according to claim 37, wherein said second ~~predetermined~~ reference level is a maximum of signal levels ~~obtained from said plurality of signal processing units~~ when said reference density board is scanned.

46. (Currently Amended) The image sensing apparatus according to claim 37, wherein said second ~~predetermined~~ reference level is a minimum of signal levels ~~obtained from said plurality of signal processing units~~ when said reference density board is scanned.

47. (Currently Amended) The image sensing apparatus according to claim 37, wherein said first ~~predetermined~~ reference level is a maximum of signal levels ~~obtained from said plurality of signal processing units~~ when said white ~~board~~ member is scanned and said

second ~~predetermined~~ reference level is a minimum of signal levels ~~obtained from said plurality of signal processing units~~ when said reference density board is scanned.

48. (Currently Amended) The image sensing apparatus according to claim 37, wherein said adjustment ~~data acquisition~~ unit ~~acquires the adjustment data so that~~ adjusts maximum levels of image signals ~~obtained from said plurality of signal processing units~~ so that they become maximum levels after adjustment ~~by said adjustment unit~~.

49. (Currently Amended) The image sensing apparatus according to claim 37, wherein the levels between said first and second ~~predetermined~~ reference levels are interpolated by a straight line.

50. (Currently Amended) The image sensing apparatus according to claim 37, wherein the levels between said first and second ~~predetermined~~ reference levels are interpolated by a curve.

51. (Original) The image sensing apparatus according to claim 37, wherein the interpolation is performed by operation.

52. (Original) The image sensing apparatus according to claim 37, wherein said adjustment data is in a form of a look up table.

53. (Original) The image sensing apparatus according to claim 37, wherein said image sensor separately outputs signals of a right-side divided area from signals of a left-side divided area.

54. (Original) The image sensing apparatus according to claim 37, wherein said image sensor is a linear image sensor.

55 (Original) The image sensing apparatus according to claim 54, wherein a plurality of said linear image sensors respectively corresponding to a plurality of colors are provided to form a color image sensor.

56. (Original) The image sensing apparatus according to claim 37, wherein said image sensor is an area image sensor.

57. (Original) The image sensing apparatus according to claim 37, wherein each of said plurality of signal processing units includes an amplifier for amplifying the image signal output from the output terminal.

58. (Currently Amended) The image sensing apparatus according to claim 37, ~~wherein each of said plurality of signal processing units includes an~~ further comprising A/D ~~converter for converting~~ converters each adapted to convert the image signal output from ~~the~~ each output terminal from an analog signal to a digital signal.

59. (Original) The image sensing apparatus according to claim 39, wherein the image sensing apparatus is connected to a printer and said reference density member is printed by said printer.

60. (Original) The image sensing apparatus according to claim 37, wherein said reference density member has at least a portion of uniform density.

61. (Original) The image sensing apparatus according to claim 59, wherein the image sensing apparatus is integrally configured with said printer.

62. (Currently Amended) An adjustment method of adjusting image signals in an image sensing apparatus having an image sensor which separately outputs image signals ~~of~~, each area having a plurality of divided areas of a plurality of photoreceptive pixels, from a plurality of output terminals respectively corresponding to the plurality of divided areas~~, a plurality of signal processing units, respectively corresponding to the plurality of divided areas, for applying predetermined signal processing to the image signals output from said output terminals, and a white board~~, said method comprising:

a reference level acquisition step of acquiring a first reference level based on the image signals output from said output terminals when said image sensor reads a white member, and acquiring a second reference level based on the image signals output from said output terminals when said image sensor reads a reference density member having a predetermined density of half-tone;

a first reading step of scanning said white ~~board~~ member by said image sensor and outputting image signals ~~processed by said plurality of signal processing units~~;

a second reading step of scanning said reference density board by said image sensor and outputting image signals ~~processed by said plurality of signal processing units~~; and

an adjustment ~~data acquisition~~ step of ~~acquiring adjustment data, for the respective signal processing units, for 1) substantially matching levels~~ adjusting level of the image signal output from each of said output terminals so that level of the image ~~signals~~ signal output in said first reading step ~~to a~~ substantially corresponds with said first ~~predetermined~~ reference level, ~~2) substantially matching levels~~ and adjusting level of the image signal output from each area of said image sensor so that level of the image ~~signals~~ signal output in said second reading step ~~to a~~ substantially corresponds with said second ~~predetermined~~ reference level~~, and 3) substantially matching levels of the image signals output from said plurality of signal processing units to a level obtained by interpolating between said first and second predetermined levels when an image having a density other than the density of said white board and said reference density board is scanned on the basis of the image signals obtained in said first and second reading steps; and~~

~~an adjustment step of adjusting levels of image signals output from said plurality of signal processing units using said adjustment data.~~

63. (Original) The adjustment method according to claim 62, wherein said reference density member is provided within the image sensing apparatus.

64. (Original) The adjustment method according to claim 62, wherein the image sensing apparatus further comprises a platen for placing an original to be read on it,

and in said second reading step, said reference density member placed on said platen is read.

65. (Currently Amended) The adjustment method according to claim 62, wherein at least one of the first and second ~~predetermined~~ reference levels is set in advance.

66. (Currently Amended) The adjustment method according to claim 62 further comprising a step of calculating an average of signal levels obtained ~~from said plurality of signal processing units~~ in said first reading step as said first ~~predetermined~~ reference level.

67. (Currently Amended) The adjustment method according to claim 62 further comprising a step of acquiring a maximum of signal levels obtained ~~from said plurality of signal processing units~~ in said first reading step as said first ~~predetermined~~ reference level.

68. (Currently Amended) The adjustment method according to claim 62 further comprising a step of acquiring a minimum of signal levels obtained ~~from said plurality of signal processing units~~ in said first reading step as said first ~~predetermined~~ reference level.

69. (Currently Amended) The adjustment method according to claim 62 further comprising a step of calculating an average of 25 signal levels obtained ~~from said plurality of signal processing units~~ in said second reading step as said second ~~predetermined~~ reference level.

70. (Currently Amended) The adjustment method according to claim 62 further comprising a step of acquiring a maximum of signal levels obtained ~~from said plurality of signal processing units~~ in said second reading step as said second ~~predetermined~~ reference level.

71. (Currently Amended) The adjustment method according to claim 62 further comprising a step of acquiring a minimum of signal levels obtained ~~from said plurality of signal processing units~~ in said second reading step as said second ~~predetermined~~ reference level.

72. (Currently Amended) The adjustment method according to claim 62 further comprising:

a step of acquiring a maximum of signal levels obtained ~~from said plurality of signal processing units~~ in said first reading step as said first ~~predetermined~~ reference level; and

a step of acquiring a minimum of signal levels obtained ~~from said plurality of signal processing units~~ in said second reading step as said second ~~predetermined~~ reference level.

73. (Canceled)

74. (Currently Amended) The adjustment method according to claim 62, wherein the levels between said first and second ~~predetermined~~ reference levels are interpolated by a straight line.

75. (Currently Amended) The adjustment method according to claim 62, wherein the levels between said first and second ~~predetermined~~ reference levels are interpolated by a curve.

76. (Original) The adjustment method according to claim 62, wherein the interpolation is performed by operation.

77. (Original) The adjustment method according to claim 62, wherein said adjustment data is in a form of a look up table.

78. (Original) The adjustment method according to claim 62, wherein said image sensor separately outputs signals of a right-side divided area from signals of a left-side divided area.

79. (Original) The adjustment method according to claim 62, wherein said image sensor is a linear image sensor.

80. (Original) The adjustment method according to claim 79, wherein the image sensing apparatus a plurality of said linear image sensors respectively corresponding to a plurality of colors are provided to form a color image sensor.

81. (Original) The adjustment method according to claim 62, wherein said image sensor is an area image sensor.

82. (Currently Amended) The adjustment method according to claim 62, ~~wherein each of said plurality of signal processing units includes an amplifier for~~ further comprising a step of amplifying the image signal output from each of the output ~~terminal~~ terminals.

83. (Currently Amended) The adjustment method according to claim 62, ~~wherein each of said plurality of signal processing units includes an A/D converter for~~ further comprising a step of converting the image signal output from each of the output ~~terminal~~ terminals from an analog signal to a digital signal.

84. (Original) The adjustment method according to claim 64, wherein the image sensing apparatus is connected to a printer, and the adjustment method further comprises a step of printing said reference density member by said printer.

85. (Original) The adjustment method according to claim 62, wherein said reference density member has at least a portion of uniform density.

86. (Currently Amended) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for an adjustment method of adjusting image signals in an image sensing apparatus having an image sensor which separately outputs image signals ~~of~~, each area having a plurality of divided areas of a plurality of photoreceptive pixels, from a plurality of output terminals respectively corresponding to the plurality of divided areas~~, a plurality of signal processing units, respectively corresponding to the plurality of divided areas, for applying predetermined signal~~

~~processing to the image signals output from said output terminals, and a white board~~, said product including:

first computer readable program code means for acquiring a first reference level based on the image signals output from said output terminals when said image sensor reads a white member, and acquiring a second reference level based on the image signals output from said output terminals when said image sensor reads a reference density member having a predetermined density of half tone;

~~first~~ second computer readable program code means for scanning said white ~~board~~ member by said image sensor and outputting image signals ~~processed by said plurality of signal processing units~~;

~~second~~ third computer readable program code means for scanning said reference density board by said image sensor and outputting image signals ~~processed by said plurality of signal processing units~~;

~~third~~ fourth computer readable program code means for ~~acquiring adjustment data, for the respective signal processing units, for 1) substantially matching levels~~ adjusting level of the image signal output from each of said output terminals so that level of the image ~~signals output from said plurality of signal processing units to a~~ signal substantially corresponds with said first ~~predetermined~~ reference level when said white ~~board~~ member is scanned, ~~2) substantially matching levels~~ and adjusting level of the image signal output from each area of said image sensor so that level of the image ~~signals output from said plurality of signal processing units to a~~ signal substantially corresponds with said second ~~predetermined~~ reference level when said reference density board is scanned~~, and 3) substantially matching levels of the image signals output from said plurality of signal processing units to a level obtained by interpolating between~~

~~said first and second predetermined levels when an image having a density other than the density of said white board and said reference density board is scanned; and~~

~~fourth computer readable program code means for adjusting levels of image signals output from said plurality of signal processing units using said adjustment data.~~

87. (New) The image sensing apparatus according to claim 37, wherein said adjustment unit adjusts so that the level of the image signal output from each of said output terminals substantially corresponds with a level obtained by interpolating between said first and second reference levels when said image sensor reads an image having a density other than the density of said white member and said reference density member.

88. (New) The adjustment method according to claim 62, wherein in said adjustment step, the level of the image signal output from each of said output terminals is adjusted to substantially correspond with a level obtained by interpolating between said first and second reference levels when said image sensor reads an image having a density other than the density of said white member and said reference density member.

89. (New) The computer program product according to claim 86, wherein said fourth computer readable program code means adjusts so that the level of the image signal output from each of said output terminals substantially corresponds with a level obtained by interpolating between said first and second reference levels when said image sensor reads an image having a density other than the density of said white member and said referenee density member.